

**Health and Wellbeing Assessment for Asian Elephant Lucy**  
**October 2, 2025**  
**Jennifer D'Agostino, DVM, DACZM**

The purpose of my visit to the Edmonton Valley Zoo was to provide an outside, objective assessment of Lucy's overall health and wellbeing. I spent a full day with the elephant care and veterinary teams observing routine husbandry practices, evaluating housing, participating in a thorough physical examination, and learning more about Lucy's history.

**Health Assessment**

Lucy is 50 years old which is considered geriatric. Median life expectancy for a female Asian elephant in human care is approximately 48 years. Lucy has been diagnosed with osteoarthritis, an age-related degenerative condition, which is commonly seen in geriatric elephants. This was evident in watching Lucy's movements as well as review of current and historic radiographs. Arthritis in her carpal and tarsal joints as well as in her digits results in slower movement and ambulation as well as more limited range of motion in affected joints. Arthritis is also likely present in other joints as well including elbows, knees, spine, and neck although this cannot be confirmed through antemortem diagnostics currently available due to the large size of elephants. The change in distribution of pressure on the joints from the arthritis often leads to other issues such as foot disease and lameness. During the visit, Lucy's feet were in good condition and no overt lameness was observed. The elephant is on a regimen of analgesic therapy, supplements, and acupuncture to help provide joint comfort and receives regular foot care tailored to her specific needs.

Outside of the routine age-related degenerative issues, Lucy also has some more unique health challenges that are being managed. Within the past couple of years, Lucy developed what appears to be sinus congestion which results in frequent nasal discharge. Multiple diagnostic tests have been performed with no obvious cause found for the congestion. The discharge at the time of the visit was clear and watery with some mucous. This condition does change the nature of Lucy's respirations with breathing appearing to occur primarily from the mouth versus the trunk. It has also resulted in change in vocalizations. While this is a chronic condition, Lucy appears to be comfortable.

Lucy's teeth are abnormally twisted and cause a change to the shape of her mouth and cheeks. Staff inspect her teeth daily and clean out any material that might get trapped in gingival pockets. Fecal bolus size and texture remain normal indicating that she is able to chew and digest food properly.

Lucy has also more recently developed episodic hypoproteinemia (low blood protein). This appears to occur more commonly in the winter but a cause has not been identified despite myriad diagnostic tests. The condition can lead to edema (swelling) of the limbs, abdomen, and head. The staff have responded by providing a supplement regimen to support blood protein levels throughout the year and continue to monitor kidney and liver function closely.

During the visit, an abdominal ultrasound was performed which showed that the liver tissue appears relatively normal. There are some areas of hyperechogenicity which may represent fatty or fibrous deposits in the liver parenchyma which is not uncommon in aged individuals and typically does not result in liver dysfunction. In addition, there was some free fluid noted within the abdominal cavity, primarily around the intestinal loops, which appeared to be slightly more than normal but not pathologic. No other abnormalities were noted on the ultrasound. Routine blood gas analysis was also performed before and after an activity session to monitor drop in blood oxygen levels. Venous blood oxygen level did drop after a short activity session which may be abnormal. However, normal venous blood oxygen response with activity has not been studied in elephants and therefore normal values are unknown.

### **Husbandry and Facilities**

Lucy has both an indoor and outdoor habitat. The indoor habitat has multiple stalls to provide choice but is relatively small compared to current standards. One stall has a large sand pile and it is evident by imprints in the sand that Lucy uses this pile while sleeping at night. The outdoor space has two connected yards with natural substrate along with additional piles of sand and peat for dust bathing. Given the climate in Edmonton, Lucy is able to spend time in both spaces throughout a good portion of the year but is primarily indoors during the colder winter months. Lucy also spends time walking throughout the zoo with caretakers most days which promotes joint movement, activity, and mental stimulation. Throughout her day, Lucy has an incredible amount of choice and control over her experiences and where she spends her time. Camera footage is reviewed daily and Lucy is seen utilizing both her indoor and outdoor spaces routinely. During my visit, in which the routine was altered from a typical day, Lucy did spend the majority of the day on hard surfaces (concrete, asphalt) which can lead to increased strain on arthritis joints.

Lucy has a positive relationship with care staff and is bonded to her caretakers. Behavioral training is appropriate and Lucy willingly participates in her own health care. Throughout the visit, I witnessed Lucy exhibit a wide range of natural behaviors including grazing, browsing, dust bathing, and vocalizing (rumbling). I did not witness any stereotypic or inappropriate behavior during the visit. Lucy is managed in free contact and appears to seek contact and reassurance from her caretakers. Lucy is provided a wide array of enrichment items and was seen interacting with several items during my visit.

### **Summary**

I believe that the staff at the Edmonton Valley Zoo are fully committed to providing the very best care for Lucy. Lucy is provided excellent medical care, superior nutrition, an enriching environment, dedicated care staff, and an incredible amount of choice and control over her experiences. Habitat space is somewhat limited but the extension of her space into public and non-public areas of the zoo with varied substrates during daily walks is beneficial and provides opportunity for the elephant to spend time on a variety of substrates. Any increase in time spent on natural substrate versus concrete and asphalt will be beneficial to her joint comfort. The zoo does have plans for habitat expansion and renovation to allow Lucy to spend more time utilizing all of her habitat spaces even in the colder months.

As for being housed singly, I do not feel this is detrimental to this individual elephant. She is incredibly bonded to her caretakers who serve as her "herd". This elephant has spent her entire life at the Edmonton Valley Zoo. Moving this elephant away from the only space she has ever known and away from the people she is bonded to would be incredibly detrimental to her wellbeing in my opinion. In addition, a transport of any length would be very difficult for Lucy given her arthritis and chronic respiratory disease and would certainly not be in her best interest from a welfare perspective.

I believe that Lucy is provided everything she needs at the Edmonton Valley Zoo for her welfare. However, my recommendation to staff is to focus on her quality of life. Lucy has several health conditions that are currently managed through medication, supplements, and modifications to daily routine. These conditions have progressed over time and will continue to progress as Lucy ages and I recommend that staff focus on monitoring quality of life parameters so that appropriate decisions can be made for her overall wellbeing.

A handwritten signature in black ink that reads "Jennifer D'Agostino". The signature is written in a cursive, flowing style.

Jennifer D'Agostino, DVM, DACZM  
Chief Animal Program Officer, Oklahoma City Zoo